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CONTRIBUTIONS TO OUR KNOWLEDGE OF THE WEEVILS OF THE
SUPERFAMILY CURCULIONOIDEA.

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In 1916 the writer¹ published a synopsis of the classification of the Rhynchophora which he has adopted as far as the division into superfamilies is concerned, leaving the details as to lower groups for future discussions. It is of course to be understood that continued studies of morphological and biological characters may lead to many modifications in the system now in use.

A number of general observations of importance have been made which may be mentioned at this time and will be followed up from time to time by detailed studies.

1. The structure of the larvae and pupae of weevils is of very great importance in the taxonomy of the group.

2. All the species of weevil larvae and pupae so far studied can be identified and separated from each other by good characters.

3. It will ultimately be possible for the systematist to identify whatever larvae are submitted, at least to the genus. Such information if quickly obtained may save months of time.

4. The characters of the immature stages will often decide doubtful questions as to the location of a group in the classification. One such example is the finding that *Gymnaetron* is related to *Anthonomus*.

5. The use of the thoracic sclerites is of greater importance even than was ascribed to them by LeConte and Horn, but we have much detailed work to do before beginning a more extensive use of these characters.

6. The genera of weevils are usually definitely defined groups separable not only on morphological but also on biological characters. The writer has found a number of genera, such as *Rhynchites* and *Apion*, which contain many subgenera, to be really separable into valid genera on the basis of both habit and structure.

¹ Proc. U. S. Nat. Mus., vol. 51, No. 2159, pp. 461-464, Dec. 1916.

7. No genus or larger group should be studied alone from the standpoint of a single geographic region or subdivision. We must take into account the occurrence of the group in other parts of the world and the work done upon it elsewhere. Our American classification has yet to be coördinated with the European. In the present paper part of that coördination is attempted.

The present paper is divided into several separate titles which represent, one might say, building materials for the erection of the structure of weevil classification.

1. A SYNOPSIS OF THE CLASSIFICATION OF THE CURCULIONOIDEA.

Superfamily *Curculionoidea* Hopkins (1911).

Table of families of Curculionoidea.

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|--|----|------------------|-------------|
| 1. Mandibles with deciduous tip, leaving a scar; mentum generally large and covering the maxillae; beak more or less robust, never slender and filiform; scrobes attaining, or almost so, the commissure of the mouth..... | 1 | PSALLIDIIDAE | Pierce. |
| Mandibles without deciduous piece; mentum often very small, maxillae free..... | | | 2 |
| 2. Prosternum not sulcate between the coxae, which are usually contiguous (Synmerida)..... | | | 3 |
| Anterior coxae more or less distant (Apostasimerida)..... | | | 7 |
| 3. Pygidium always covered by elytra; tarsal claws connate or free, never appendiculate..... | | | 4 |
| Pygidium exposed, or in default, tarsal claws appendiculate (Pygidophora)..... | | | 6 |
| 4. Metasternum very short; metathoracic episternum narrow (Brachystetha)..... | | | 5 |
| Metasternum more or less elongate; metathoracic episternum at least moderately large (Macrostetha)..... | 4 | HYPERIDAE | Pierce. |
| 5. Submentum not pedunculate; tibiae unarmed, very rarely and then briefly mucronate at apex..... | 2 | PSALIDURIDAE | Pierce. |
| Submentum pedunculate..... | 3 | LIPARIDAE, | new family. |
| 6. Abdominal segments not angulate at sides..... | 5 | CURCULIONIDAE | Leach. |
| Abdominal segments angulate at sides..... | 6 | CIONIDAE, | new family. |
| 7. Antennal club articulated; third joint of tarsi bilobed (Aulacostetha).
Antennal club compact; third joint of tarsi almost always entire (Cyclopoda)..... | | | 8
9 |
| 8. Mesothoracic epimera not ascending..... | 7 | OROBITIDAE | Pierce. |
| Mesothoracic epimera ascending..... | 8 | CRYPTORHYNCHIDAE | Pierce. |
| 9. Pygidium exposed..... | 9 | RYNCHOPHORIDAE | Pierce. |
| Pygidium covered..... | 10 | COSSONIDAE | Shuckard. |

The classification thus proposed follows very closely that of Lacordaire, differing principally by the higher rank of the groups

and the difference in nomenclature. The generic nomenclature has received very careful attention by the writer and is in strict adherence to the rules of nomenclature and the opinions of the International Commission on Zoölogical Nomenclature. In the following discussion the type genera are considered only.

1. Family **Psallidiidae** Pierce (1916).

Otiorrhynchidae LeConte (1874).

Brachyrrhinidae Bedel (1885).

Brachyrrhinidae Pierce (1913).

Psallidiidae Pierce (1916).

The North American classification is treated by the writer in Proc. U. S. Nat. Mus., vol. 45, pp. 372-426, May 23, 1913.

Type genus.—*Psallidium* (Hellwig) Illiger, 1798, Verzeichniss der Käfer Preussens, p. 497.

Type—*maxillosus* Fabricius, designated by Schönherr (1826) in Curc. Disp. Meth., and (1833) in Gen. et Sp. Curc. The genus has generally been dated from Illiger (1807) in which it is also spelled *Psallidium*, or from Schönherr (1826) where it is spelled *Psalidium*. It is the oldest genus in the family, antedating *Brachyrrhinus* Latreille (1802).

2. Family **Psaliduridae** Pierce (1916).

Amycteridae MacLeay (1866).

Psaliduridae Pierce (1916) mere mention.

The family corresponds with Lacordaire's *Synmerides*, phalange I, Section A, group I (Gen. Coleop. VI, p. 290).

Type genus.—*Psalidura* Fischer, 1823, Mem. Soc. Imp. Nat. Mosc., vol. 6, p. 265.

Type—*mirabilis* Kirby, monotypic.

Amycterus (Dalman) Schönherr, 1826, Curc. Disp. Meth., p. 202, has as its type, *mirabilis* Kirby, by original designation, and is hence as isogenotypic synonym of *Psalidura*. It is therefore necessary to rename the genus known as *Amycterus* in our literature.

Pseudamycterus, new genus.

Amycterus auct., and Gemminger and Harold, 1871, Cat. Coleop., p. 2342 (not *Amycterus* Schönherr, 1826).

Type.—*Amycterus schönherri* Hope.

3. Family **Liparidae**, new family.

Plinthidae Pierce (1916) mere mention.

The family corresponds with Lacordaire's *Synmerides*, phalange I., Section A, group II (Gen. Coleop. VI, p. 290).

Type genus.—*Liparus* Olivier, 1807, Entomologie, vol. 5, No. 73, pp. 282-292, not preoccupied by *Liparis* Artedi, 1736.

Type—*germanus* Linnaeus, designated by Latreille, 1810, Consid. Gen.

Molytes Schönherr, 1826, Curc. Disp. Meth., pp. 14, 172, 173, has as its originally designated type *germanus*, Linnaeus, and is hence isogenotypic.

4. Family **Hyperidae** Pierce (1916).

Hyperidae Pierce (1916) mere mention.

The family corresponds with Lacordaire's Synmerides, phalange I, Section B, group I, excepting Scythropides and Promecopides which belong to the Psalliidiidae.

Type genus.—*Hypera* Germar, 1817, Mag. der Ent., vol. 2, pp. 339-341.

Type—*nigrirostris* Fabricius, designated by Leach, 1819, in Samouelle's Entomologist's Useful Compendium, pp. 199-206, and again in 1824, in the second edition of the same. The genus *Phytonomus* Schönherr, 1826, is considered by most writers as a part of this genus. Our clover and alfalfa weevils should therefore go by the generic name *Hypera*.

5. Family **Curculionidae** Leach (1817) restricted.

This family has never been properly treated for North America, although such groups as the Anthonomini, parts of *Magdalis*, *Otidocephalus*, etc., have been monographed. It corresponds to Lacordaire's Synmerides, phalange II, Section A, group II (Gen. Coleop. VI, p. 538).

Type genus.—*Curculio* Linnaeus, 1758, Systema Naturae, 10th edit., vol. 1, pp. 377-386.

Type—*nucum* Linnaeus, designated by Latreille (1810) in Consid. Gen. This genus had become lost by the process of division. Various types have been selected but the first designation is that of Latreille, which is held valid by virtue of Opinion 11 of the International Commission.

Balaninus Germar (1817) is isogenotypic. The typical Curculionine weevils are therefore those formerly known as Balaninini, the nut weevils.

6. Family **Cionidae**, new family.

This family corresponds with Lacordaire's Synmerides, phalange II, Section B, group II (Gen. Coleop. VI, p. 594).

Type genus.—*Cionus* Clairville and Schellenberg, 1798, Ent. Helv., vol. 1, p. 64.

Type—*blattariae* Clairville and Schellenberg, designated by Latreille, 1802, Hist. Nat. Gen. et Part.

7. Family *Orobitidae* Pierce (1916).

This family corresponds to Lacordaire's *Apostasimerides*, phalange I, Section A, group II (Gen. Coleop. VII, pp. 4-6).

Type genus.—*Orobitis* Germar, 1817, Mag. der Ent., vol. 2, pp. 339-341.

Type—(*globosus* Fabricius) = *cyaneus* Linnaeus, monotypic. *Orobites* Schönherr, 1826, also has for its type, *globosus*.

As will be noticed under the next family, the genus *Cryptorhynchus* Schönherr (1826) not Illiger (1807) is preoccupied and we are compelled to greatly alter our nomenclature. The genus *Cryptorhynchus* Gemminger and Harold (1871) is a great composite, but the oldest genus contained therein is *Coelosternus* Sahlberg (1823) with *balteatus* Sahlberg as type. This generic name then replaces *Cryptorhynchus* and *Cryptorrhynchus* for all weevils not yet assigned to definite genera.

Cryptorhynchidius, new genus.

Cryptorhynchus Schönherr, 1826 (not Illiger, 1807).

Type—*Curculio lapathi* Linnaeus.

8. Family *Cryptorhynchidae* Pierce (1916).

This family corresponds with Lacordaire's *Apostasimerides*, phalange I, Section B, group II (Gen. Coleop. VI, p. 190).

Type genus.—*Cryptorhynchus* Illiger, 1807, Mag. für Insektenkunde, vol. 6, p. 330. In some volumes of this work it is spelled *Chryptorhynchus*.

Type—*pericarpus* Linnaeus, designated by Latreille, 1810, Consid. Gen.

Rhinoncus Schönherr, 1837, Gen. et Sp. Curc., vol. 4, p. 577, also has *pericarpus* as its type, and is hence isogenotypic.

9. Family *Rynchophoridae* Pierce (1916).

Calandridae LeConte and Horn (1876).

Rynchophoridae Pierce (1916).

This family corresponds to Lacordaire's *Apostasimerides*, phalange II, group I.

Type genus.—*Rynchophorus* Herbst, 1795, Käfer, vol. 6, pp. 3-29.

Type—*palmarum* Linnaeus, designated by Schönherr, 1826, Curc. Disp. Meth.

Cordyle Thunberg, 1797, Kongl. Vet. Acad., vol. 18, pp. 44-49; and *Rhynchophorus* Schönherr, 1826, Curc. Disp. Meth. are isogenotypic.

Calendra Clairville and Schellenberg (1789).

Calendra Clairville and Schellenberg, 1798, Ent. Helv., p. 62.

Type—*abbreviata* Fabricius, designated by Latreille, 1810, in *Consid. Gen.*

Calandra Fabricius, 1801, Syst. Eleuth., vol. 2, pp. 429-438.

Sphenophorus Schönherr, 1838, Gen. et Sp. Curc., vol. 4, p. 874.

Type—*abbreviata* Fabricius.

This change gives our bill bugs the name *Calendra*.

Sitophilus Schönherr (1838).

Sitophilus Schönherr, 1838, Gen. et Sp. Curc., vol. 4, p. 967.

Type—*oryza* Linnaeus.

Calandra auct. not Fabricius (1801).

This change gives our grain weevils the appropriate name *Sitophilus*.

10. Family *Cossonidae* Schuckard (1840).

This family corresponds to Lacordaire's *Apostasimerides*, phalange II, group II.

Type genus.—*Cossonus* Clairville and Schellenberg, 1798, Ent. Helv., vol. 1, pp. 60, 61.

Type—*linearis* Fabricius, designated by Latreille, 1810, in *Consid. Gen.*

II. STUDIES OF THE TRIBE MECININI.

Family *Curculionidae* Leach (1817).

Subfamily *Orchestinae* Pierce (1916).

Anthonominae Pascoe (1870).

Table of tribes of Orchestinae.

1. Hind legs normal, non saltatory.....	2
Hind legs saltatory.....	ORCHESTINI Pierce.
2. Prothorax with more or less developed ocular lobes.....	
.....	LONCOPHORINI Pierce
Prothorax without ocular lobes.....	3
3. Tarsal claws free.....	ANTHONOMINI Le Conte.
Tarsal claws connate.....	4
4. Tarsal claws appendiculate.....	BRADYBATINI, new tribe.
Tarsal claws not appendiculate.....	MECININI Desbrochers.

Tribe **Mecinini** Desbrochers (1893).

Gymnetrides Lacordaire, 1866, Gen. Col., vol. 7, p. 6.

Gymnetrinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Mecinini, Desbrochers des Loges, 1893, Le Frelon, vols. 2, 3.

Gymnetrinae Bovie, 1909, Genera Insectorum, fasc. 92.

Type genus.—*Mecinus* Germar, 1821, Mag. der Ent., vol. 4, p. 315.

Type—*pyrauster* Herbst, designated by Schönherr (1826), in Curc. Disp. Meth.

This tribe has been placed by most writers in the Apostasimerida, associating *Mecinus*, *Gymnaetron* and *Miarus*. These genera differ radically in coxal character. There has been much difference of opinion as to the proper position of all three genera. Judging from Bovie's figure of the pupa of *Miarus campanulae* I consider that genus to really belong in the Apostasimerida. On the other hand the pupæ in my possession of *Gymnaetron teter* prove beyond a doubt that it is Anthonomine in its essential characteristics. Lacordaire acknowledged that *Gymnetron* had the Anthonomine characters but he preferred to associate it with *Miarus*.

This tribe was generically monographed under the name *Gymnetrinae* by Bovie (1909) in *Genera Insectorum*, fasc. 92, and included only three genera, *Mecinus*, *Gymnetron*, and *Miarus*. The genus *Mecinus* does not occur in this country. I am now excluding *Miarus* from the tribe and leaving it in the Apostasimerid series, Orobittidae.

Genus **Gymnaetron** Schönherr.

Gymnaetron Schönherr, 1826, Curc. Disp. Meth., p. 319.

Type—*beccabungae* Linnaeus, by original designation.

Gymnetron Schönherr, 1837, Gen. et Sp. Curc. vol. 4, pp. 743-776. Monograph.

Gymnetron Brisout de Barneville, 1862, Ann. Soc. Ent. Fr., ser. 4, vol. 2, pp. 625-668. Revision of genus.

Gymnetron Desbrochers, 1893, Le Frelon, vol. 2, No. 10, 11, pp. 1-18. Revision of genus.

Gymnetron Reitter, 1907, Bestimmungs Tab. 59. Verh. Naturforsch. Ver. Brünn, vol. 65, separate pp. 15-43. Revision of genus.

Gymnetron Bovie, 1909, Gen. Insectorum (Wytsman's), fasc. 92, pp. 8-16, 2 plates. List of species in genus.

Table of Subgenera of Gymnaetron.
(after Reitter)

1. Third elytral striae united apically with the eighth . . . GYMNAETRON.
Third elytral striae united apically with the sixth, the seventh and eighth being united . . . RHINUSA.

Subgenus *Gymnaetron* Schönherr.

Type—*beccabungae* Linnaeus.

The typical subgenus does not occur in the United States. Many species of *Gymnaetron* have a squamose area on the pleural regions of thorax and this area is absent from *Rhinusa*.

Subgenus *Rhinusa* Stephens.

Rhinusa Stephens, 1829, Syst. Cat. Brit. Ins., p. 150.

Type—*antirrhini* Paykull, designated by Westwood, 1840.

Table of North American Species of Rhinusa.

1. Scutellum elongate; thorax but little broader than long; anterior femora armed with minute denticles; beak shorter than prothorax; elytra longer than broad. ANTIRRHINI Paykull.
2. Scutellum broad, rounded; thorax very broad, transverse; anterior femora of male with very strong tooth; beak as long as prothorax; elytra about as broad as long. TETER Fabricius.
 - a. Large specimens with pubescence thick on thorax and elytra, intervals with several rows of setae; no red markings. var. TETER Fabricius.
 - b. With red spots on apical portion of elytra. var. PLAGIELLUM Gyllenhal.
 - c. Small specimens with thinner pubescence; some intervals with but a single row of setae; no red markings. var. SUBROTUNDATUM Reitter

The beak of the male is more punctate and rougher than that of the female in this genus. Both of the species here determined have been compared with European specimens and also with the descriptions.

Gymnaetron (Rhinusa) antirrhini Paykull (1800).

Curculio antirrhini Paykull, 1800, Fauna Suec., vol. 3, p. 257, no. 78.

Curculio noctis auct., Brisout not Herbst (1795).

This is a European species recorded as breeding in seed pods of *Linaria genistaefolia* and *L. vulgaris*. The name *antirrhini* is confused with the variety *subrotundatum* Reitter cited below. The material at hand answers the description and tallies with the three European specimens determined as *noctis*. Three

specimens are from New Haven, Connecticut, collected by M. P. Zappe, July 1 and 9, 1914, and bearing the numbers 111-113. Many specimens are at hand which were bred by P. H. Timberlake from seed pods of *Linaria vulgaris* at Melrose Highlands, North Saugus, and Forest Hills, Massachusetts in July and August, 1909 (Hunter No. 2494). Adults were found in July.

This species is readily distinguishable from *G. teter subrotundatum* by the elongate scutellum; the longer prothorax; the erect pubescence on thorax as well as elytra. In *teter* and its varieties the dorsal vestiture of the thorax is appressed. Length 2-2.5 mm.

Gymnaetron (Rhinusa) teter Fabricius.

Rhynchaenus teter Fabricius, 1801, Syst. El., vol. 2, p. 448.

This European species has long been known in the United States. It breeds in the pods of *Verbascum thapsus*. The material of the typical variety is from Massachusetts, Maine, Canada, New York, Pennsylvania, New Jersey, District of Columbia, Virginia, North Carolina, Michigan, Wisconsin, Missouri, Iowa, Nebraska, Mississippi, Alabama, Oklahoma, and Texas. Texas and Wisconsin material was bred from *Verbascum thapsus* and Massachusetts material collected on the same plant.

Gymnaetron (Rhinusa) teter subrotundatum Reitter.

Gymnaetron (Rhinusa) teter subrotundatum Reitter, 1907, Verh. Naturf. Ver. Brünn, vol. 65 (Bestim. Tab. 59), p. 35.

A European variety of *teter* very greatly resembling *antirrhini* and formerly confused with it. Specimens are at hand from Hamden, Connecticut; Boston, Massachusetts; Dunkirk, New York; District of Columbia; Grand Ledge and Port Huron, Michigan; and Dallas, Texas. Length 2-3 mm.

Gymnaetron (Rhinusa) teter plagiellum Gyllenhal.

Gymnetron plagiellus Gyllenhal, 1837, Schönherr's Gen. et Sp. Curc., vol. 4, p. 759.

This is a European aberration of *teter* characterized only by the red areas on the elytra.

The material is principally from Dallas, Texas, although specimens are also at hand from Iowa City, Iowa, Wisconsin, and Maryland.

III. SYNOPSIS OF THE CLASSIFICATION OF THE OROBITIDAE.

Family **Orobitidae** Pierce (1916).

Table of subfamilies of *Orobitidae*.

1. Mesosternum very often canaliculate or excavated, leaving between it and the prosternum a depression. 2

Mesosternum never canaliculate, horizontal, forming a surface almost continuous with the prosternum and metasternum.....	14
2. Antennal funicle 5-jointed.....1 MIARINAE, new subfamily.	
Antennal funicle 6- or 7-jointed.....	3
3. Tarsus with one claw.....2 HAPLONYCHINAE Pascoe.	
Tarsus with two claws.....	4
4. Prothorax covered with fine costae, longitudinal and parallel.....	
.....3 EUDERINAE Pascoe.	
Prothorax not covered with fine costae, longitudinal and parallel.....	5
5. Rostrum very short, robust, subquadrangular; antennae very short.....	
.....4 NERTHOPINAE Pascoe.	
Rostrum and antennae at least moderately long.....	6
6. Femora armed with a great triangular tooth.....	
.....5 MENEMACHINAE Pascoe.	
Femora unarmed or dentate, the tooth at most moderate in size.....	7
7. Rostrum cylindrical throughout, generally slender.....	8
Rostrum variable, but not cylindrical; compressed or depressed, at least at base.....	11
8. Prosternum not canaliculate, sometimes a little concave.....	9
Prosternum canaliculate.....9 ISORHYNCHINAE Pascoe.	
9. Elytra not covering the pygidium.....6 LAEMOSACCINAE Pascoe.	
Elytra covering the pygidium.....	10
10. Tarsal claws cleft, or simple and connate.....7 ALCIDINAE Pascoe.	
Tarsal claws simple and free.....8 DERELOMINAE Pascoe.	
11. Eyes very rarely approximate on the front, more or less covered when the rostrum is at rest.....	12
Eyes rarely separated above, always uncovered, even when the rostrum is at rest.....13 ECCOPTINAE, new subfamily.	
12. Prosternum not canaliculate, sometimes a little excavated.....	13
Prosternum canaliculate, rarely excavated.....12 OROBITINAE Pierce.	
13. Anterior coxae separated.....11 AMERININAE, new subfamily.	
Anterior coxae contiguous.....10 METATYGINAE, new subfamily.	
14. Rostrum short and robust, body depressed.....	15
Rostrum at least moderately long, never very robust.....	16
15. Rostrum very depressed, straight.....14 ULOMASCINAE Pascoe.	
Rostrum angulate, arcuate.....15 EPIPEDINAE, new subfamily.	
16. Mesosternum large, transverse, quadrate; body oblong, depressed.....	
.....16 TRYPETIDINAE, new name.	
Mesosternum reduced to a tiny transverse band; body briefly oval, very convex.....17 PYROPINAE Pascoe.	

1. Miarinae, new subfamily.

Type genus.—*Miarus* Schönherr, 1826, Curc. Disp. Meth., p. 320. Name of stirps 2 of *Gymnaetron*.

Type—*campanulae* Linnaeus, by original designation.

2. Subfamily **Haplonychinae** Pascoe (1870).

Haplonycides Lacordaire, 1866, Gen. Col., vol. 7, p. 16.

Haplonychinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Haplonyx* Schönherr, 1836, Gen. et Sp. Curc., vol. 3, pp. 606, 607.

Type—*spencei* Schönherr, by original designation.

3. Subfamily **Euderinae** Pascoe (1870).

Euderides Lacordaire, 1866, Gen. Col., vol. 7, p. 18.

Euderinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Euderis* Schönherr, 1826, Curc. Disp. Meth., p. 227.

Type—*lineicollis* Wiedemann, by original designation.

4. Subfamily **Nerthopinae** Pascoe (1870).

Nerthopides Lacordaire, 1866, Gen. Col., vol. 7, p. 19.

Nerthopinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Nerthops* Schönherr, 1826, Curc. Disp. Meth., p. 61.

Type—[*multiguttatus* (Wiedemann) Schönherr, by original designation]—*guttata* Olivier.

5. Subfamily **Menemachinae** Pascoe (1870).

Menemachides Lacordaire, 1866, Gen. Col., vol. 7, p. 27.

Menemachinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Menemachus* Schönherr, 1843, Gen. et Sp. Curc., vol. 7, pt. 2, p. 266.

Type—*naevus* Boheman, by original designation.

6. Subfamily **Laemosaccinae** Pascoe (1870).

Lémosacides Lacordaire, 1866, Gen. Col., vol. 7, p. 12.

Laemosaccinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Laemosaccini Le Conte, 1876, Proc. Am. Phil. Soc., vol. 15, p. 223.

Type genus.—*Laemosaccus* Schönherr, 1826, Curc. Disp. Meth., pp. 6, 50.

Type—*plagiatus* Fabricius, by original designation.

7. Subfamily **Alcidinae** Pascoe (1870).

Alcidides Lacordaire, 1866, Gen. Col., vol. 7, p. 14.

Alcidinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Alcides* Sahlberg, 1823, Peric. Ent., p. 47.

Type—*senex* (Schönherr) Sahlberg, monotypic.

Alcides Schönherr, 1826, Curc. Disp. Meth., has as its type, *trilobus* Fabricius, by original designation and is at present writing congeneric with the true *Alcides*.

8. Subfamily **Derelominae** Pascoe (1870).*Derelomides* Lacordaire, 1866, Gen. Col., vol. 7, p. 9.*Derelominae* Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.*Derelomini* Le Conte, 1876, Proc. Am. Phil. Soc., vol. 15, p. 221.*Type genus*.—*Derelomus* Schönherr, 1826, Curc. Disp. Meth., p. 235.*Type*—*chamaeropsis* Fabricius, by original designation.9. Subfamily **Isorhynchinae** Pascoe (1870).*Isorhynchides* Lacordaire, 1866, Gen. Col., vol. 7, p. 172.*Isorhynchinae* Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.*Type genus*.—*Isorhynchus* Schönherr, 1833, Gen. et Sp. Curc., vol. 1, p. 22.*Type*—*pudivus* Sparrman, monotypic.10. Subfamily **Metatyginae**, new subfamily.*Type genus*.—*Metatyges* Pascoe, 1866, Journ. Ent. vol. 2, p. 424.*Type*—*turritus* Pascoe, monotypic.11. Subfamily **Amerininae**, new name.*Cholides* Lacordaire, 1866, Gen. Col., vol. 7, p. 32.*Cholinae* Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 347.*Type genus*.—*Ameris* (Schönherr) Dejean, 1821, Cat. Coleop., p. 86.*Type*—*dufresnei* Kirby, designated by Germar (1824), Crotch (1870).*Amerhinus* Schönherr, 1826, Curc. Disp. Meth., p. 266 is isogenotypic.*Amerhinus* Sahlberg, 1823, Peric. Ent., p. 44, has as its type *ynca* (Schönherr) Sahlberg, monotypic. This genus is at present congeneric with *Ameris*.*Cholus* Germar dates from 1824 and consequently can not give its name to the subfamily.12. Subfamily **Orobitinae** Pierce, 1916.*Cryptorhynchides* Lacordaire, 1866, Gen. Col., vol. 7, p. 48.*Cryptorhynchinae* Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.*Cryptorhynchini* Le Conte, 1876, Proc. Am. Phil. Soc., vol. 15, p. 223.*Orobitinae* Pierce, 1916, Proc. U. S. Nat. Mus., vol. 51, p. 469.*Type genus*.—*Orobitis* Germar, 1817, Mag. der Ent., vol. 2, pp. 339-341.*Type*—(*globosus* Fabricius) = *cyaneus* Linnaeus, monotypic.13. Subfamily **Eccoptinae**, new subfamily.*Zygopides* Lacordaire, 1866, Gen. Col., vol. 7, p. 142.*Zygopinae* Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Zygopini Le Conte, 1876, Proc. Am. Phil. Soc., vol. 15, p. 259.

Type genus.—*Eccoptus* Dejean, 1821, Cat. Coleop., p. 86.

Type—*strix* Olivier, designated by Crotch (1870).

Zygops Schönherr, 1826, Curc. Disp. Meth., p. 300, with *wiedii* Germar as the originally designated type, is at present congeneric with *Eccoptus*.

14. Subfamily *Ulomascinae* Pascoe (1870).

Ulomascides Lacordaire, 1866, Gen. Col., vol. 7, p. 184.

Ulomascinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Ulomascus* Fairmaire, 1848, Ann. Soc. Ent. Fr., ser. 2, vol. 6, p. 173.

Type—*caviventris* Fairmaire, monotypic.

15. Subfamily *Epipedinae* Pascoe (1870).

Epipedides Lacordaire, 1866, Gen. Col., vol. 7, p. 186.

Epipedinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Epipedus* Schönherr, 1842, Gen. et Sp. Curc., vol. 6, pt. 2, p. 462.

Type—*squamifer* Boheman, monotypic.

16. Subfamily *Trypetidinae*, new name.

Trypetides Lacordaire, 1866, Gen. Col., vol. 7, p. 177.

Trypetinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Trypetes*, Schönherr, 1836, Gen. et Sp. Curc., vol. 3, p. 595.

Type—*rhinoides* Gyllenhal, monotypic.

The subfamily name had been altered to its correct spelling to prevent confusion with the *Trypetinae* based on *Trypeta* in the Diptera.

17. Subfamily *Pyropinae* Pascoe (1870).

Pyropides Lacordaire, 1866, Gen. Col., vol. 7, p. 187.

Pyropinae Pascoe, 1870, Journ. Linn. Soc., vol. 10, p. 437.

Type genus.—*Pyropus* Schönherr, 1836, Gen. et Sp. Curc., vol. 3, p. 641.

Type—*sapphirinus* Gyllenhal, by original designation.

IV. STUDIES OF NORTH AMERICAN MIARINAE.

Miarinae, new subfamily.

This subfamily was formerly a part of the *Mecininae* or *Gymnetrinae*, which I have now removed to form the tribe *Mecinini* in the *Orchestinae*, and retain here only the genus *Miarus*.

Genus *Miarus* Schönherr.

Miarus Schönherr, 1826, Curc. Disp. Meth., p. 320.

Type—*campanulae* Linn., by original designation.

Miarus Stephens, 1831, Ill. Brit. Ent., p. 15.

Type—*campanulae* Linnaeus, designated by Westwood, 1840.

Cleopus Suffrian, 1854, Stett. Ent. Zeit., p. 94 (not Dejean 1821), (not Stephens 1829).

Cleopus Brisout de Barneville, 1862, Ann. Soc. Ent. Fr., ser. 4, vol. 2, pp. 663-668. Revision of genus.

Miarus Desbrochers des Loges, 1893, Le Frelon, vol. 2, No. 10/11, pp. 15-18. Revision of genus.

Miarus Reitter, 1907, Verhandl. Naturf. Ver. Brünn, vol. 65, sep. pp. 43-49. Revision of genus.

Miarus Bovie, 1909, Genera Insectorum (Wytzman's), fasc. 92, pp. 16, 17. List of species in genus.

Specimens of the type *Miarus* (*Miarus*) *campanulae* Linnaeus, are at hand from Europe.

The genus is divisible into two subgenera:

- Pubescence erect or suberect. CLEOPOMIARUS, new subgenus.
- Pubescence decumbent, appressed. MIARUS Schönherr

Cleopomiarus, new subgenus.

Miarus LeConte, 1876, Proc. Am. Phil. Soc., vol. 15, p. 221.

Table of North American Species of the Subgenus Cleopomiarus.

All our species have mutic metafemora.

1. Pleural regions of thorax setose; prothorax with the erect sparse hairs extremely long, bristling and conspicuous. Body stout, oblong, convex, deep black throughout, the sparse vestiture hairy and cinereous; beak slender, slightly arcuate, similar in the sexes though a little shorter in the male, longer than the head and thorax in the female; eyes widely separated; prothorax nearly as wide as the elytra, very strongly narrowed from base to apex, with arcuate sides, punctures coarse and separated; scutellum densely clothed with short decumbent hair-like scales; elytra barely a fifth longer than wide, very broadly, obtusely rounded behind, clad with long, erect hairs; under surface with erect sparse cinereous hairs, shorter, denser, and more decumbent on pleura; length 2.4-2.8 mm. EREBUS Casey.
2. Pleural regions of thorax squamose. 2
3. Elytral intervals thickly pubescent, very seldom with only a single row of setae. 3
- Elytral intervals usually with only a single row of white, almost bristle-like setae, body elongate oval; sides of elytra parallel, elytra much longer than broad; suture toward apex with a short comb of hairs. Prothorax rounded on sides, broader than long (*consuetus* Casey). MERIDIONALIS Brisout.
3. Elytra clothed with white and dark brown hairs intermixed, scutellum densely white pubescent, pleural regions clothed with grey plumose

scales, venter with white hairs; body short, deep black, shining; pubescence not concealing integument, shorter on thorax than on elytra. Beak in ♀ slender, slightly arcuate, surpassing mesocoxae; in ♂ somewhat shorter and coarser. Prothorax strongly transverse, somewhat narrower than elytra, densely strongly but shallowly punctate. Elytra short and broad, almost quadrate, rounded on sides, convex; deeply striate. Length 2-3 mm. **HISPIDULUS** Le Conte.

- | | |
|--|-------------------------|
| Upper surface clothed with gray hairs..... | 4 |
| 4. Ovate, oval or short oval, convex; prothorax about two-thirds wider than long..... | 5 |
| Elongate oval..... | 6 |
| 5. Elytra but little wider than thorax..... | MICROS Germar. |
| Elytra much wider than thorax..... | PURITANUS Casey. |
| 6. Thorax nearly three-fourths wider than long; sides feebly rounded, size under 2 mm..... | NANUS Casey. |
| Thorax about one-half wider than long; sides strongly rounded; size over 2 mm..... | ILLINI Casey. |

The great scarcity of these weevils in this country and their presence only on introduced European plants leads me to believe that this genus is typically European. I feel certain that further study will prove that all of our species are synonyms of some European species. In the following notes I have indicated some of my suspicions.

Miarus (Cleopomiarus) erebus Casey.

Miarus erebus Casey, 1910, Can. Ent., vol. 42, pp. 142, 143.

Described from near Colonia Garcia, Sierra Madre Mts. Chihauhau, Mexico, altitude 7300 feet.

The presence in this species of hairs, instead of scales on the pleural region of the thorax is a character of *Gymnaetron* rather than *Miarus*, although the beak is elongate as in *Miarus*.

Miarus (Cleopomiarus) hispidulus Le Conte.

Miarus hispidulus Le Conte, 1876, Proc. Am. Phil. Soc., vol. 15, p. 221.

Miarus hispidulus Reitter, 1907, Verh. Naturforsch. Ver. Brünn, vol. 65, p. 46. Described as new species.

Miarus hispidus Bovie, 1909, Gen. Insect., fasc. 92, p. 17. Proposed as a new name for *hispidulus* Reitter.

A European species described from Andalusia and easily differentiated by the two colors of setae on the elytra. It is widely distributed over the eastern United States. It is an odd coincidence that the species although twice described, and from different continents, received the same name each time.

Material is at hand from Straight Creek, Lee Co., Virginia; Kanawha Station, West Virginia, on *Lobelia*; Springfield, Massachusetts; Pen Mar, Pennsylvania; New York; Grand Ledge, Michigan; Kansas City, Missouri; Pontchatoula, Louisiana; Baldwin, Florida. It breeds in the seed pods of *Lobelia inflata* and *L. syphilitica*.

Miarus (Cleopomiarus) micros Germar.

Cionus micros Germar, Mag. der Ent., vol. 4, p. 309, No. 21.
A European species which breeds in the capsules of *Jasione montana*.

Two specimens from Winnipeg, Manitoba, collected by Hanham, run to this species in Reitter's table.

Miarus (Cleopomiarus) puritanus Casey.

Miarus puritanus Casey, 1910, Can. Ent., vol. 42, pp. 143, 144.

No material is at hand which can be definitely placed here, although a Massachusetts specimen of *hispidulus* answers rather closely.

Miarus (Cleopomiarus) nanus Casey.

Miarus nanus Casey, 1910, Can. Ent., vol. 42, p. 144.

No material is at hand which can be attributed to this species. It is also described from Massachusetts.

Miarus (Cleopomiarus) illini Casey.

Miarus illini Casey, 1910, Can. Ent., vol. 42, p. 144. Described from Illinois.

No material is at hand from Illinois, nor are there any specimens which can be definitely assigned here.

Miarus (Cleopomiarus) meridionalis Brisout.

Gymnetron (Cleopus) meridionalis Brisout de Barneville, 1862, Ann. Soc. Ent. Fr., ser. 4, vol. 2, p. 668.

Miarus consuetus Casey, 1910, Can. Ent., vol. 42, p. 144.

A European species recorded from France, Spain, Italy, Algeria, and Tunis. Casey's species was described from Kansas. One specimen is at hand from Douglas Co., Kansas, altitude 900 ft., collected by F. H. Snow. In Europe this species breeds in the ovaries of *Linaria filifolia*, and *L. striata*.

THE IDENTITY OF SMYNTHURODES BETAE WESTWOOD (HOM.).

By A. C. BAKER, Bureau of Entomology.

In the Gardners Chronicle, July 7, 1849, p. 420, J. O. Westwood erected the genus *Smynthurodes* for a species of aphid which